

Chapter 2

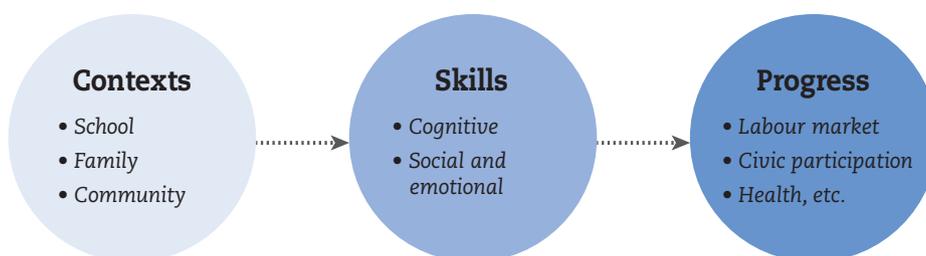
Learning contexts, skills and social progress: a conceptual framework

This chapter presents a conceptual framework that describes the relationships between learning contexts, skills and social progress. Individuals' skills are formed in diverse learning environments, including families, schools and communities. Each of these contexts is influenced by direct inputs, environmental factors and policy levers which can be used by decision makers to foster the development of the full spectrum of skills needed for achieving social progress. Social progress includes diverse aspects of individuals' lives, including education, labour market outcomes, health, family life, civic engagement and life satisfaction. Skills encompass cognitive, social and emotional capabilities needed for achieving prosperous, healthy and happy lives. Social and emotional skills play a particularly important role when individuals pursue goals, work with others and manage emotions. Skills develop progressively, building on previously acquired skills and on new learning investments. Those that start developing skills early tend to achieve more than others, although adolescence is also a key moment for social and emotional skills development.

Introduction

This chapter introduces a conceptual framework designed to capture the key mechanisms through which learning contexts, including learning investments, shape individual well-being and societal progress (Figure 2.1).¹ This framework, while acknowledging the importance of cognitive skills in driving socio-economic outcomes, sheds light on the role of social and emotional skills, such as the ability to pursue long-term goals, work with others and manage emotions. Securing a job, enjoying good health or actively participating in society require a diverse set of skills, and it is important to consider how these different types of skills contribute in order to understand how to successfully improve outcomes. The framework formally incorporates diverse outcomes representing the multifaceted nature of social and economic progress – not just education and jobs, but also health, civic engagement and life satisfaction. This chapter presents the components of the framework in detail and outlines the key relationships between them.

Figure 2.1. **The relationship between learning contexts, skills and social progress**



Social progress

Individual well-being and social progress are composed of diverse outcomes

Perhaps the ultimate goal of education policy makers, teachers and parents is to help children achieve the highest level of well-being possible. The OECD well-being initiatives illustrate the diverse economic and non-economic measures that make up the well-being of individuals and nations (see Box 1.2 and OECD, 2013). The framework for individual well-being and social progress presented here draws from OECD Framework for Measuring Well-Being and Progress which emphasises the broad spectrum of outcomes relevant in the modern world. These include education, labour market outcomes, health, life satisfaction, family life, civic engagement, safety and environmental outcomes (Figure 2.2).

Moving beyond the economic outcomes of learning, the framework also reflects the way policy thinking has evolved, with a growing shift towards understanding not only economic, but social, influences on people's success and societal progress. This is, for instance, reflected by the work of the Stiglitz-Sen-Fitoussi Commission on the Measurement of Economic Performance and Social Progress (Stiglitz, Sen and Fitoussi, 2009). As mentioned in Chapter 1, the importance of securing and maintaining social outcomes, such as good health and engaged citizenship, is ever-pressing for policy makers in the context of a world recovering from the economic crisis.

The proposed framework aims to investigate the influence cognitive, social and emotional skills have on a broad range of social progress indicators (Figure 2.2). It focuses on indicators that can be reliably measured and analysed. Many of these outcome indicators have already been developed for children based on a well-being framework (OECD, 2009).

- **Education and skills** outcomes can be analysed using measures such as educational attainment, grades on achievement tests, grade repetition and truancy.
- **Labour market** outcomes can be assessed using indicators such as work status (e.g. employment, unemployment, looking for job), type of work (e.g. full-time, permanent, self-employment) and earnings.
- **Material conditions** includes indicators such as income, assets, consumption and housing.
- **Health status** can be analysed by looking at positive behaviours (e.g. exercising, visiting the doctor regularly), risky behaviours (e.g. drug and alcohol use) and outcomes (e.g. body mass index, self-reports of health status and depression).
- **Civic engagement** can be assessed using measures of volunteering, voting and interpersonal trust.
- **Personal security** can be captured with data on bullying and violent acts, as well as criminal activity (e.g. personal theft, vandalism and assault).
- **Family and social connections** category comprises factors such as single parenthood; family breakdown; teenage pregnancy; contact with, and support from family and friends.
- **Subjective well-being** is represented by measures of life satisfaction, experiences of stress and other measures of subjective happiness.
- **Environmental** outcomes can be indirectly captured using individual's pro-environmental behaviours, such as recycling, using public transport or their understanding of human impact on the environment.

These individual outcomes are the building blocks of socio-economic outcomes at the aggregate level.

Figure 2.2. **A framework for individual well-being and social progress**



Source: Adapted from OECD (2011), *How's Life?: Measuring Well-being*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264121164-en>.

Skills

The skills that drive individual success and social progress are multi-dimensional...

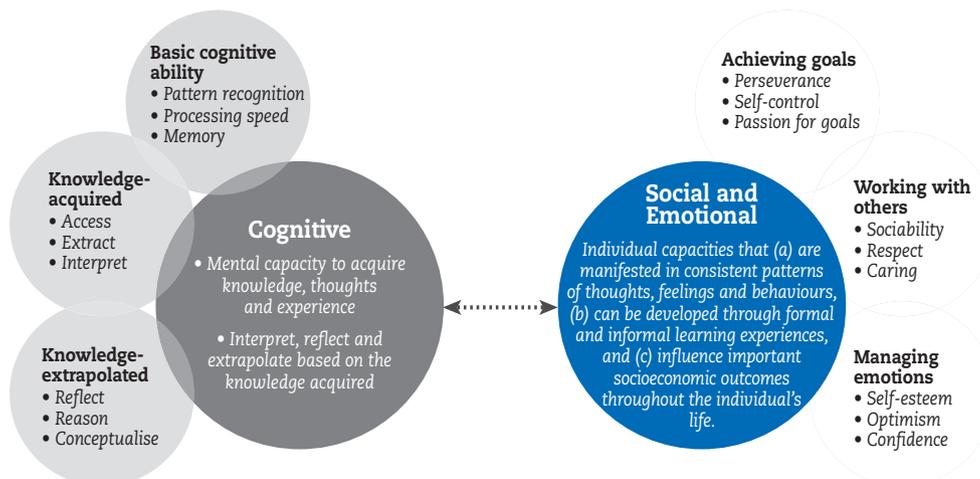
The OECD emphasises the role of skills in helping individuals face the challenges of the modern world and urges policy makers to deliver the right instruments to mobilise skill potential (OECD, 2012). In this report, skills are broadly defined as individual characteristics that drive at least one dimension of individual well-being and socio-economic progress (*productivity*), that can be measured meaningfully (*measurability*), and that are malleable through environmental changes and investments (*malleability*). Individuals need multiplicity of skills to achieve diverse life goals.

Skills are also key to understanding the development of social and economic inequalities. In OECD countries and partner economies around the world, schooling gaps across ethnic and income groups have more to do with skill deficits than family financial capabilities during school-going years (Cunha and Heckman, 2007). An increase in cognitive skills increases the probability of a number of positive outcomes, such as completing tertiary education, finding a job and earning a good salary. While these skills are highly predictive of success in some aspects of life, social and emotional skills show a higher predictive power for a broader range of social outcomes (Heckman, Stixrud and Urzua, 2006; Kautz et al., 2014).

... and include social and emotional skills such as perseverance, self-esteem and respect for others...

Social and emotional skills – also known as non-cognitive skills, soft skills or character skills – are the kind of skills involved in achieving goals, working with others and managing emotions. As such, they manifest themselves in countless everyday life situations. Figure 2.3 presents a categorisation of skills based on some of their most important functions. Clearly, such skills play a role in all stages of life: while children are taught which behaviour is appropriate when playing with others, adults need to learn the rules of team play in professional settings, for instance. People pursue goals from an early age (e.g. when playing games, solving puzzles) and this becomes ever-more important in adulthood (e.g. when pursuing academic degrees and jobs, etc.). Learning appropriate ways of showing positive and negative emotions and managing stress and frustration is a lifelong pursuit, especially when dealing with life changes such as divorce, unemployment and long-term disabilities. These broad skill categories (i.e. pursuing goals, working with others and managing emotions) include a number of lower-level skill constructs, as described in Figure 2.3.

Figure 2.3. A framework for cognitive, social and emotional skills



The framework presented here is broadly in line with other existing frameworks, particularly the “Big Five” personality taxonomy (Box 2.1). However, it also draws upon other theoretical perspectives (e.g. positive psychology and personal strivings) and existing frameworks (e.g. Character Framework from the Center for Curriculum and Redesign; Social and Emotional Learning (SEL) Framework and; KIPP Character Framework) that look at those individual characteristics that education stakeholders can foster through adequate practices.

Box 2.1. The Big Five factors

The Big Five factors is a classification system of personality that distinguishes five basic dimensions: extraversion, agreeableness, conscientiousness, emotional stability (also known as neuroticism) and openness to experience. Costa and McCrae (1992) provide a list of important facets corresponding to each of these factors.

Extraversion: Gregariousness, assertiveness, activity, adventurousness, enthusiasm, warmth

Agreeableness: Trust, straightforwardness, altruism, compliance, modesty, sympathy

Conscientiousness: Efficiency, organisation, dutifulness, achievement striving, self-discipline, deliberation

Emotional stability: Anxiety, irritability, depression, self-consciousness, impulsiveness, vulnerability

Openness: Curiosity, imagination, aesthetics, actions (wide interests), excitability, unconventionality

Extraversion is probably the most widely used of the factors and the most familiar one. Typically those high in extraversion are characterised by energy, positive emotions and assertiveness. Agreeableness can be characterised by aspects such as being caring, modest and trusting. Hence, both of these factors play a central role when working with others. Conscientiousness involves dutifulness, striving to achieve, and acting in a goal-directed manner, and as such, plays an important role in achieving goals. Emotional stability refers to the ability to deal with negative emotional experiences and stressors, and is central to managing emotions. Openness to new experiences is perhaps the most elusive of the factors, as it relates to a broad range of aspects such as sensitivity to art and beauty, need for variety and intellectual curiosity (McCrae and John, 1992).

The five dimensions of the Big Five broadly capture the underlying core qualities of the individual – typical patterns of thoughts, feelings, and behaviours – and thus provide a parsimonious and highly efficient personality trait summary (John and De Fruyt, 2014). However, a model with few concepts is very broad and thus less able to predict specific outcomes. A measurement model needs further specification in order to understand growth trajectories, to identify the impact of different learning contexts, and to explain future outcomes. A model with three to five facets in each of the broad Big Five domains should help in following individuals across both broad and more specific levels of the personality trait hierarchy (John and De Fruyt, 2014).

Our framework defines social and emotional skills as: “individual capacities that can be (a) manifested in consistent patterns of thoughts, feelings and behaviours, (b) developed through formal and informal learning experiences, and (c) important drivers of socioeconomic outcomes throughout the individual’s life”. The definition emphasises the latent nature of the construct that is manifested in consistent patterns of individual’s responses across situations and contexts. These skills can be enhanced, through environmental changes and investments, and consequently drive individual’s future outcomes.

Skills that matter for future outcomes also include cognitive skills such as literacy, numeracy and problem solving

Cognitive skills are also described in various ways, such as smarts, knowledge or intelligence. These skills are involved in the process of acquiring and applying knowledge. Our framework reflects this diversity as well, distinguishing between basic cognitive ability, knowledge acquired and knowledge extrapolated (Figure 2.3). Basic cognitive ability refers to fundamental skills such as speed of processing and memory. Knowledge acquired refers to the ability to access, extract and interpret remembered knowledge. Knowledge extrapolated involves the more complex process

needed to reflect on, and reason with, the information, and, as a result, conceptualise novel ways of dealing with the problem at hand. This categorisation is in line with the difference between fluid intelligence (which relates to abstract thinking and the ability to solve problems in novel situations) and crystallised intelligence (which relates to using acquired knowledge and experience) (Cattell, 1987).

This framework is consistent with, and draws inspiration from, other cognitive skill frameworks, in particular the OECD Programme for International Student Assessment (PISA) framework. What unites them is the idea that cognitive skills do not involve just applying knowledge, but rather includes the ability to reflect and engage in more complex thinking patterns. Indeed, PISA's definition of literacy as the capacity of students to analyse, reason and communicate effectively as they pose, solve and interpret problems in a variety of subject matter areas (OECD, 2006) illustrates how multidimensional cognitive skills are. For example, reflection is a complex processes as it demands not only accessing knowledge but also relating it to other experiences, reframing a problem, making connections and thus being able to apply the acquired knowledge to new situations.

Many of the 21st century skills, such as creativity and critical thinking, have both cognitive and socio-emotional elements

Our framework also allows for the fact that cognitive and socio-emotional skills interact, and in so doing, mutually influence each other (Figure 2.3). Indeed, skills such as creativity and critical thinking may be best understood by incorporating both cognitive and socio-emotional dimensions. Creativity, also referred to as divergent thinking, involves producing content that is not only novel, original and unexpected, but also appropriate, useful and adapted to the task at hand (Lubart, 1994). It has been found to be related to measures of intelligence, as well as social and emotional skills. The Big Five framework also provides an understanding of some aspects of these complex skills. For instance, creative people tend to be more open to new experiences, imaginative, less conscientious; more impulsive; and more extraverted (Feist, 1998).

Critical thinking, on the other hand, involves the ability to use the rules of logic and cost-benefit analysis, think strategically and apply the rules to new situations to solve problems. This skill has a very strong cognitive component relying on the ability to reflect on information, interpret it in a new context and find solutions to novel problems based on existing knowledge (Halpern, 1998). However, critical thinking also incorporates aspects of openness to new experience, such as imagination and unconventionality (John and Srivastava, 1999). Many real-life situations require the emergence of more complex skills which incorporate intellectual, social and emotional components. In order to understand these skills, the current framework incorporates different aspects of skills domains and acknowledges that different skills interact in everyday situations.

Measuring social and emotional skills, while challenging, can be reliably done

Social and emotional skills may sometimes be under-rated in policy debates, since many assume these skills cannot be reliably measured. Indeed, unlike height or weight, social and emotional skills cannot be directly observed.² They can instead be indirectly measured using self/observer reporting, task performance and administrative records of student behaviours which may be subject to bias or noise.

There are reliable and valid self-descriptions on personality items from the age of ten onwards (Soto et al., 2011), when children have acquired a certain vocabulary and are developing their self-reflective and social comparison skills. Diverse instruments to measure personality exist for adults (Box 2.2 for

an example of subjective measures). The evidence suggests that some of these instruments provide a reliable measure of personality traits and predict individual socio-economic outcomes well, at least within a cultural and linguistic boundary in developed (Ozer and Benet-Martínez, 2006; Almlund et al., 2011) and developing countries (Pierre et al., 2014). Nevertheless, both self- and observer ratings can be biased due to the subjective views that the respondent may possess about the subject, which may have little to do with the subject's actual social and emotional skills. In particular, individual self-reporting may also be heavily affected by social desirability, faking, acquiescence and reference group effects (Kyllonen and Bertling, 2014).

Box 2.2. Subjective measures of personality traits: The Big Five Inventory

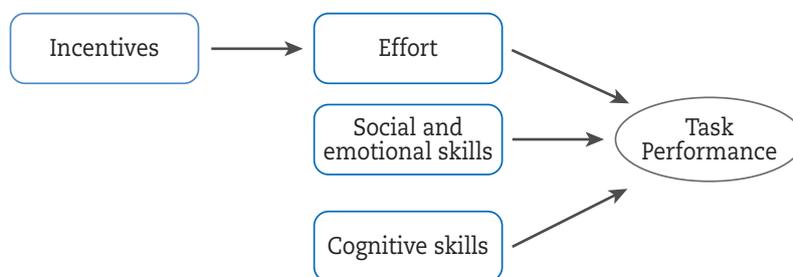
There are many measurement instruments available to capture an individual's personality traits using subjective reporting. One of the most influential instruments is the Big Five Inventory (John and Srivastava, 1999). There are various versions of this inventory including long (44 items) or short (10 items). The short version is based on the extent to which respondents agree or disagree with the following questions: I see myself as someone who...

| Personality factors | Item (questions) |
|---------------------|--|
| Extraversion | Is reserved (R). Is outgoing, sociable. |
| Agreeableness | Is generally trusting. Tends to find fault with others (R). |
| Conscientiousness | Tends to be lazy (R). Does a thorough job. |
| Emotional stability | Is relaxed, handles stress well (R). Gets nervous easily. |
| Openness | Has few artistic interests (R). Has an active imagination. |

Note: (R) represents items that will be reverse coded.

One way to improve subjective measurement is to collect self, teacher, parental and peer reporting. Multiple informants can provide unique perspectives on children's skills and allow for triangulations to infer latent personality (John and De Fruyt, 2014). Anchoring vignette is another potentially useful method to improve data quality in general, to reduce response biases, and to improve cross-cultural comparability of social and emotional skill assessments (Kyllonen and Bertling, 2014).

Social and emotional skills can also be reliably measured using individual task performance (Kautz et al., 2014). This can be done in the form of a laboratory test (i.e. designing behavioural tasks in a laboratory setting to measure a particular skill, e.g. the marshmallow test); psychometric observational studies (e.g. interviews with trained psychologists, assessing an individual's response to situations, or diagnostic questions); or behavioural measures (e.g. response to a question such as "How many times have you arrived late for school or work during the past month?"). These measures are, however, also subject to biases due to difference in efforts the examinee puts into the test, as well as differences in skills other than the ones measured by the test (e.g. cognitive skills) which may affect task performance. Hence, a precise measure of social and emotional skills would require conditioning the measures on efforts and other skills. Figure 2.4 illustrates this point by describing the relationship between incentives, effort and skills in explaining task performance.

Figure 2.4. **The relationship between incentives, effort and skills in task performance**

Source: Kautz, T. et al. (2014), "Fostering and Measuring Skills: Improving Cognitive and Non-cognitive Skills to Promote Lifetime Success", OECD Education Working Papers, No. 110, OECD Publishing, <http://dx.doi.org/10.1787/5jxsr7vr78f7-en>.

A promising way to assess social and emotional skills is to exploit administrative data on childhood behaviours (e.g. school attendance) as recorded by teachers and parents. This information is widely available and does not require separate assessment of social and emotional skills. Even after the cognitive component of these measures is removed (i.e. standardising for other skills), they are still highly predictive of their educational, labour market and social outcomes (Kautz et al., 2014; Heckman, Humphries and Veramendi, 2014).

Skills need to be understood in a dynamic framework

Skills develop over time, as Figure 2.5 illustrates. There is growing evidence that both cognitive and social and emotional skills can be enhanced during an individual's lifetime. Skills development is not only affected by genes and the environment, but also by inputs from families, schools and the community. Parents assume a great responsibility in their children's skill formation as they shape many of the environmental factors that will influence their development (through their choice of neighbourhood, educational programme and household characteristics). The impact culture, policies and institutions have on skill formation and across learning contexts should not be underestimated either. These diverse learning factors are crucial in understanding the process, and are presented in detail in the following section.

Figure 2.5. **Skills development over a lifetime**

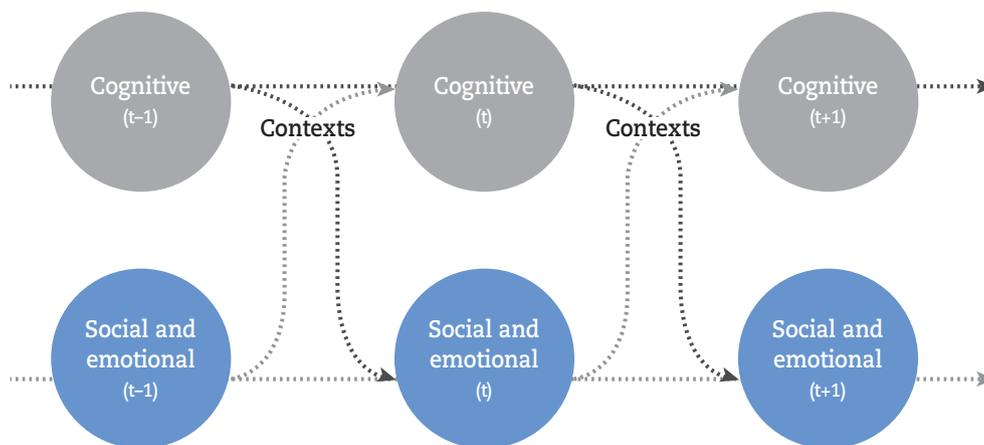
The rate of skill development largely depends on the age of individuals and their current level of skills. It is now recognised that there are sensitive periods for skill development. The first years matter tremendously for the development of skills, as they lay the foundations for future skill development. Investment in early childhood interventions brings the biggest returns in terms of securing higher levels of skills and positive adult outcomes (Kautz et al., 2014). In those years, family is of crucial importance and the patterns of interaction between parents and children have a significant impact on cognitive, social and emotional skills. However, later interventions can also be effective, especially in terms of social and emotional skills. During middle and late childhood and adolescence, schools,

peer groups and the community become increasingly important influences in shaping these skills. In addition, alternative programmes for those who drop out of school (i.e. in-work training) have also been found to be important for later skill development (Kautz et al., 2014).

Past skills are important determinants of current skills

“Skills beget skills” is an expression often heard in the literature on skill formation: in other words, the higher the levels of skills individuals have, the higher their gain in skills, as shown in Figure 2.5 (Carneiro and Heckman, 2003). This applies to levels of the same skill, for instance a child with relatively higher maths literacy than his or her peers at the point of entering school is more likely to end with even higher maths literacy at the end of the school year, compared to his or her peers. However, there is also evidence of so-called cross-productivity (Cunha and Heckman 2007; Cunha, Heckman and Schennach, 2010) whereby one type of skill can help foster other skills over time (Figure 2.6). This is particularly true for those individuals with higher levels of social and emotional skills, as these skills can aid cognitive skill development (Chapter 4). Indeed, a child who is very disciplined and persistent is likely to increase his or her maths skills more than a child with equal levels of maths skills but with lower levels of discipline and persistence. Discipline and persistence make it more likely that the child will diligently do the homework and gain more from it. Cognitive and social and emotional skills are thus tightly connected. More generally, those with higher skills are more likely to be able to elicit more from their learning contexts. A highly skilled child is more likely to select the right tools in order to advance his or her knowledge, or seek out further opportunities for growth (e.g. through extracurricular activities).

Figure 2.6. **Dynamic interactions between cognitive and social and emotional skills**



Past skills determine the extent to which individuals benefit from new investment through input from families, schools and communities

All in all, it is clear that investment in cognitive, social and emotional skills is necessary to secure success in life. Social and emotional skills should not be neglected by policy makers, given that they are instrumental in increasing cognitive skills. Importantly, the sensitive periods for social and emotional skills are not quite the same as those for cognitive skills. While early investment is beneficial to all skills, social and emotional skills are more malleable at the later stages of life than cognitive skills (Cunha and Heckman, 2007; Cunha, Heckman and Schennach, 2010). Moreover, adolescence appears to be a period of particularly turbulent changes in social and emotional skills. For instance, adolescence tends to be associated with lower discipline (conscientiousness),

lower friendliness (agreeableness) and higher emotional instability (Soto et al., 2011). The common complaint made by parents of teenagers that they “cannot recognise their children anymore” might be a reflection of these changes in skill levels. These negative changes seem to affect some children more than others and more research is needed to understand how some of the negative impacts could be buffered in order to prevent loss of human capital. Chapters 4 and 5 discuss a number of initiatives which aim to foster cognitive and socio-emotional skills.

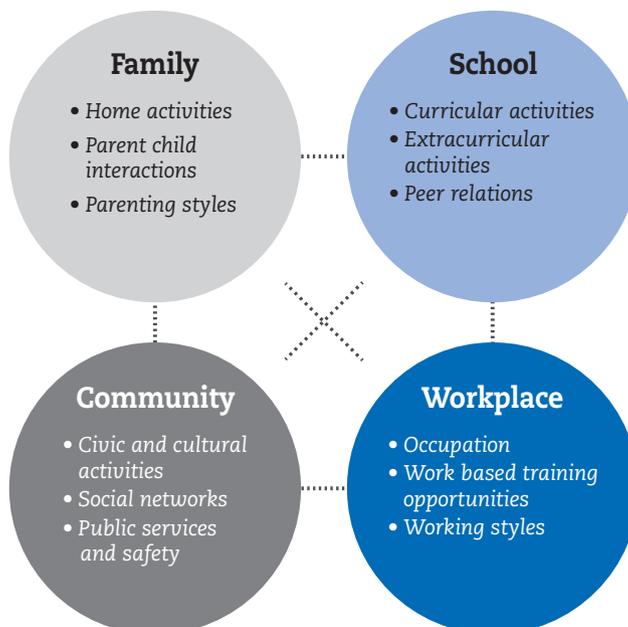
Learning contexts

Learning contexts are multidimensional

The diversity of social contexts in which learning takes place points to the value of formal, non-formal and informal learning. Formal learning involves institutionalised, curriculum-based learning and teaching, for instance, learning which occurs within the education system, or workplace learning (Werquin, 2010). Informal learning can take place within work, family or community contexts. It is not structured, and is more unintentional from the learner’s perspective (Cedefop, 2008). This type of learning happens, for instance, when children play. Non-formal learning is situated between formal and informal learning. It is structured and intentional, but not regulated, nor is it accredited or formally supported. An example might be teaching oneself how to use a particular piece of software – which is intentional but is not funded or accredited.

Hence, learning takes place in a variety of social settings, summarised in the current framework as: school, family, the community and the workplace. Within each type of context we can distinguish a number of specific elements, with examples presented in Figure 2.7. Each context contributes to the development of cognitive, social and emotional skills, though their relative importance will change depending on an individual’s stage in life. For instance, parents are clearly crucial during infancy and early childhood, but school and the community become increasingly important as a child enters formal education and interacts with diverse social networks. The workplace, in turn, is a key learning context, particularly during late adolescence and (early) adulthood.

Figure 2.7. **A framework of learning contexts**



Learning contexts include policy levers as well as factors that teachers and parents could influence

The impact of learning contexts on skills can be divided into direct inputs, environmental factors and policy levers (Table 2.1). These represent different ways in which schools, families, workplaces and communities can shape skills. Direct inputs intentionally and explicitly affect skill development; for example, parental involvement in child-rearing activities. Environmental factors, on the other hand, influence skill development indirectly by increasing resources or improving contexts that could shape the level and/or quality of learning resources available; for instance, workplace resources for training and neighborhood safety. Policy levers, on the other hand, are the elements of a learning context which are directly malleable by policy inputs and can be used to foster skill development; for instance, teacher training, which informs teachers' approaches to teaching cognitive and social and emotional skills.

These learning contexts do not function in isolation from each other; rather they constantly interact and mutually influence each other. In fact, the patterns of interactions between contexts can themselves be related to the development of skills. For instance, parental involvement in children's schools, like attending parent-teacher meetings, may foster children's social and cognitive development by improving both family and school learning contexts (El Nokali, Bachman and Votruba-Drzal, 2010).

Table 2.1. **Direct inputs, environmental factors and policy levers to enhance skills (examples)**

| | Family | School | Workplace | Community |
|------------------------------|---|--|--|---|
| Direct inputs | Parental attachment with children (e.g. reading books, sharing meals, playing); parenting styles (e.g. warm, authoritarian) | Curricular and extra-curricular activities designed to improve social and emotional skills; teacher's pedagogical skills and knowledge; teaching styles (e.g. mobilising group discussions); classroom climate; apprenticeships, service learning; mentoring | Work-based training; management styles | Activities offered in the community (e.g. art classes in cultural centres, sports association, volunteering); media; social networks |
| Environmental factors | Family's socio-economic resources (availability of learning aids, technology in the household); family stressful and disturbing events (family violence, negligence, abuse, maltreatment, malnutrition) | School composition, resources, facilities, climate and safety | Workplace resources | Public services (transportation, parks, schools, childcare centres, out-of-school services); pollution; neighbourhood safety; unemployment rate and income levels |
| Policy levers | Parental leave provisions; flexible working arrangements; childcare services; family cash benefits | Teacher training, curriculum and recruitment | Work-study programmes; subsidised training programmes; income support programmes | Training programmes for social workers |

Conclusion

Today's socio-economic climate poses a number of challenges that requires individuals to manage complexity and diversity in their private, work and social lives. These challenges can only be met by individuals with a comprehensive set of cognitive, social and emotional skills. Policy makers need to consider a wide range of capabilities, where social and emotional skills are just as important as cognitive skills. These skills interact and cross-fertilise and develop progressively, building on past investment in skills. This underlies the importance of early investment. The framework presented in this chapter is centred on the idea that successful learning takes place in and outside of the classroom, at schools, within families, communities and in workplaces. Thus, different types of learning can be particularly effective in fostering different skills that matter. The following chapters will look into different components of the framework in order to better understand the practices which can be incorporated into learning environments to foster skills development and, consequently, social progress.

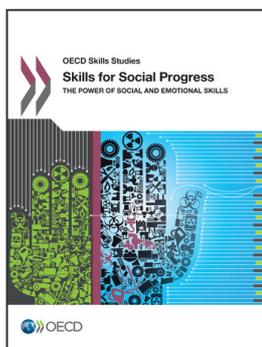
Notes

1. While this chapter emphasises how learning contributes to skills and how skills contribute to social and economic progress, these are merely two dimensions of the relationship between learning contexts, skills and outcomes. The reality is more complex, with many bidirectional relationships between these components. Outcomes can directly affect learning contexts; for instance, bad health can affect a child's ability to learn by preventing him or her from attending school. Levels of existing skills can also affect the learning contexts: more agreeable, friendly children might elicit more positive attention and learning opportunities than those who misbehave. These bidirectional relationships and feedback loops will be addressed in the empirical analyses presented in Chapters 3 and 4. They also need to be considered in the planning of successful policy interventions aiming to raise skills.
2. This is of course the same for measuring cognitive skills. All existing measures of intelligence quotient (IQ), achievement and literacy tests provide indirect measures of the cognitive construct of interest.

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